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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,036	10/15/2001	Hidehiko Tomokuni	011388	1597

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EXAMINER	
AHMED, SHEEBA	

ART UNIT	PAPER NUMBER
1773	

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/976,036	TOMOKUNI ET AL.
	Examiner	Art Unit
	Sheeba Ahmed	1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Amendments to claim 1 have been entered in the above-identified application. Claims 2 and 11 have been cancelled. Claims 1 and 3-10 are now pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1 and 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurtz et al. (US 4,568,604) in view of Burnell-Jones (US 6,207,077 B1).

Kurtz et al. disclose a three-layer laminate ***(corresponding to the molded article of the claimed invention)*** comprising a gel coat layer ***(corresponding to the surface layer A of the claimed invention)***, a glass fiber layer which comprises a polyester resin mixed with Fiberglass chops ***(corresponding to the fiber-reinforced plastic layer C of the claimed invention)***, and an intermediate layer of synthetic resin and filler ***(corresponding to the intermediate layer B of the claimed invention)*** between the gel coat layer and the glass fiber layer (Column 2, lines 1-9 and Column 4, lines 48-50). The intermediate layer comprises a polyester resin, which is a terpolymer of orthophthalic anhydride, maleic acid and propylene glycol ***(corresponding to the polymerization curable unsaturated resin)***, which is mixed with styrene

(corresponding to the polymerizable unsaturated monomer) to maintain the polyester in fluid form. The filler is a mixture of calcium silicate and mica (Column 2, lines 29-40). Figure 1 shows that the exterior surface of a mold may be coated with a layer of the gel coat followed by the intermediate layer and the glass fiber layer. Furthermore, Table 1 indicates that the filler content in the intermediate layer is about 48-weight % whereas the thixotrope content is between 0.5 to 3 percent by weight (Column 3, lines 22-56 and Column 4, lines 33-35).

Kurtz et al. do not specifically state that the filler is a hollow filler having a mean particle size of 5 to 200 microns *(as recited in claim 2)* or a calcium carbonate powder *(as recited in claim 8)*.

However, Burnell-Jones disclose a polymer blend usable as a moldable resin (Column 12, lines 10-11) comprising an unsaturated polyester, which is a reaction product of an unsaturated acid such as maleic acid and a polyhydric alcohol such as propylene glycol and comprises a saturated dibasic acid such as orthophthalic acid. The moldable blend further comprises thixotropic agents such as fumed silica in an amount of 2 to 15% by weight (Column 15, lines 62-67) and reinforcing fillers such as calcium carbonate and calcium silicate (Column 16, lines 55-66). Burnell-Jones further teaches that hollow microspheres having a particle size in the range of 5 to 5000 microns are widely used in such resin systems to reduce density, to improve stiffness and impart resistance, to reduce crazing and to displace large volumes of higher priced polymers (Column 18, lines 23-48).

Accordingly, it would have been obvious to one having ordinary skill in the art to replace the fillers taught by Kurtz et al. with hollow microspheres having a particle size in the range of 5 to 5000 microns given that Burnell-Jones specifically teach that hollow microspheres are widely used in unsaturated polyester resin systems to reduce density, to improve stiffness and impart resistance, to reduce crazing and to displace large volumes of higher priced polymers. Furthermore, Burnell-Jones teaches that calcium silicate and calcium carbonate are equivalent fillers known in the art. Therefore, because these two fillers were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute calcium carbonate for calcium silicate. With regards to the limitations that the curable resin composition is able to form a casting plate having a tensile elongation percentage of 3 to 50%, a Barcol hardness of 50 or more *(as recited in claim 1)*, the Examiner takes the position that such material properties are inherent in the intermediate layer taught by Kurtz et al. given that the intermediate layer taught by Kurtz et al. and that of the claimed invention both have the same chemical composition, i.e., both comprise the same unsaturated resin, the same unsaturated monomer, the same filler in the same amount and the same thixotropic agent in the same amount.

Response to Arguments

3. Applicant's arguments filed on December 8, 2003 have been fully considered but they are not persuasive. Applicants traverse the rejection of claims 1 and 3-10 under 35 U.S.C. 103(a) as being unpatentable over Kurtz et al. (US 4,568,604) in view of Burnell-

Jones (US 6,207,077 B1) and submit that the tensile elongation percentage of the polyester resin taught by Kurtz et al. is "2% or less" as evident by the attached teachings of the *"Practical Plastic Encyclopedia"* and the *"Polyester Handbook"*. However, no attached copies of the relevant pages of the *"Practical Plastic Encyclopedia"* and the *"Polyester Handbook"* have been received by the Office.

Applicants further argue that Kurtz does not teach a Barcol hardness of 50, a tensile elongation percentage of 3 to 50% or the use of a hollow filler and that Burnell-Jones fails to disclose an FRP laminate and recite a gel coats and moldable resins. First, the Examiner would like to point out that the limitations of tensile elongation percentage and the Barcol hardness are inherently met by the intermediate layer taught by Kurtz et al. given that the intermediate layer taught by Kurtz et al. and that of the claimed invention both have the same chemical composition, i.e., both comprise the same unsaturated resin, the same unsaturated monomer, the same filler in the same amount and the same thixotropic agent in the same amount. Second, with regards to the argument that Kurtz and Burnell-Jones are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Kurtz et al. disclose a three-layer laminate comprising a gel coat layer, a glass fiber layer which comprises a polyester resin mixed with Fiberglass chops, and an intermediate layer of synthetic resin and filler whereas Burnell-Jones disclose a polymer blend usable as a

moldable resin comprising hollow microspheres having a particle size in the range of 5 to 5000 microns which are widely used in such resin systems to reduce density, to improve stiffness and impart resistance, to reduce crazing and to displace large volumes of higher priced polymers.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheeba Ahmed whose telephone number is (571)272-1504. The examiner can normally be reached on Mondays and Thursdays from 8am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (571)272-1516. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Sheeba Ahmed
Art Unit 1773
March 4, 2004